Amendments to the Specification:

Please replace paragraph [0002] with the following amended paragraph:

[0002] Techniques of measuring distances optically have been familiar for a long time. Besides echo sounding measurements, in which short light pulses are transmitted and the time elapsed until the backscattered or reflected pulse is measured, ~~others~~ other familiar techniques involve interferometric processes.

Please replace paragraph [0007] with the following amended paragraph:

[0007] This is principally the behavior of a laser without an acousto-optical modulator. If the acousto-optical modulator now becomes excited, the material oscillations create a moving grid that varies in its density at various places; the light traveling around in the resonator is diffracted at this density grid, whereby an interaction of the light photons with the ~~photons~~ phonons characterizing the density oscillations of the ~~acouto-optical~~ acousto-optical modulator occurs, which shifts the frequency of the diffracted light by the excitation frequency of the acousto-optical modulator. This leads to the laser modes shifting in time ~~insignificantly~~ in [[the]] frequency, changing the frequency of a mode in time; when there is more than one mode, this also applies to all modes that are oscillating in the resonator. This means, however, that according to the extent the amplification 1 of the amplification profile runs, the intensities of the individual oscillating modes are different and that the mode intensity changes with the frequency. It is makes sense that the frequencies change for all modes equally with time. In other words, light that is emitted at different times will possess different frequencies.

Please replace paragraph [0010] with the following amended paragraph:

[0010] In practice, it has been shown that the signals at the measuring receiver are strongly degraded by a high noise level. If the distance that is to be determined is fixed, a single sharp line without noise in the beat frequency would be observed. In reality, however, it turns out that instead that a very broad structure instead of a sharp line is ~~received~~ obtained with FSF lasers, which severely impairs the quality of the ~~received~~ obtained measurement.

Please replace paragraph [0014] with the following amended paragraph:

[0014] Accordingly, it was not only recognized that the prevailing assumption in the interpretation of the state of technology that the beat portions coming from individual modes of the frequency shifted lasers would add up is not correct; rather, they interfere destructively. Surprisingly, the signal that can be achieved in the current state of technology with FSF lasers rests on the fact that noise in the operation of the known lasers, i.e. occurrence of fluctuation of intensity and/or phase, which prevents the occurrence of a - theoretically awaiting more exact analysis - completely destructive interference of the frequency components that are coherent to one another, as would otherwise occur. ~~For~~ Noise caused by measurements using FSF lasers, according to the current state of technology, conditional noise accordingly appears not to be a consequence of the noise of the laser; rather, it is the actual measurement signals themselves that are ~~conditioned~~ caused by the noise of the ~~lasers, i.e. their~~ laser, i.e., its inherent fluctuations.

Please replace paragraph [0016] with the following amended paragraph:

[0016] In a preferred variation, the means for increasing emission frequency component beat intensity [[are]] is configured as a means for increasing non-stochastic emission frequency component beat intensity, the means will therefore condition an intensity increase brought about by spontaneous emission, in particular in the amplification medium.

Please replace paragraph [0017] with the following amended paragraph:

[0017] Typically an injection light source is used that injects light into the emitter, i.e. provides a seed emission field ~~is arranged~~ there. As an alternative, it would also be possible to interfere with complete destructive interference of frequency components via the measurement conditioned by spontaneous emission in the stationary operating condition by modulating the pump light somewhat, which is typically less preferred due to the level duration, etc. or by bringing about a somewhat fast loss mechanism in the amplification medium itself. The presence of an injection light source, however, is especially advantageous because it is an easy to build option through which a number of advantageous configurations can be realized.

Please replace paragraph [0027] with the following amended paragraph:

[0027] As shown in Fig. 1 a general frequency shifted feedback emission source 1 ~~designated as 1~~ includes a means 2 for increasing emission frequency component beat intensity.

Please replace paragraph [0033] with the following amended paragraph:

[0033] A pump light is irradiated on the fiber 1d to bring about an inversion that makes laser operation possible. Then the piezo driver 1c1 of the acousto-optical modulator begins to oscillate so that the ring of the frequency shifted feedback laser is closed. [[Light,]] Light that is now emitted from the fiber can now run over the mirror 1a, through the prism 1c2 and the acousto-optical modulator 1c1 and the prism 1c3. The major portion of this light will thereby irradiated into the fiber 1d corresponding to the high diffraction efficiency of the ~~acouto-optical~~ acousto-optical modulator linked to the mirror 1b1.

Please replace paragraph [0034] with the following amended paragraph:

[0034] When passing through the acousto-optical modulator 1c, the frequency of the light changes simultaneously. The light that has run in the direction [[of the]] to the acousto-optical modulator with a preset frequency at the mirror 1a, will therefore strike at the other high-reflecting mirror 1b with a shifted frequency or wavelength. This light with shifted frequency is amplified in the fiber 1d, runs again over the mirror 1a under further frequency shifting through the acousto-optical modulator 1c to the mirror 1b, etc. This leads to the shifting of the frequency upon each pass. The speed used to change the frequency depends on the time it takes for the light to make a pass and how strong the frequency shift in the acousto-optical modulator is. The shift occurs for all components or modes that can be amplified in the resonator in the same way so that the frequency comb represented by the modes of the FSF laser are gradually shifted in a synchronous manner. There is a so-called "chirp." This is displayed in Fig. 3, whereas Fig. 2 displays the variation of the frequency for a given linear chirp.

Please replace paragraph [0038] with the following amended paragraph:

[0038] Now the injection light source is taken into operation and with a carrier frequency close to the lower range of the amplification curve, i.e. just still inside that range, in which the amplification is greater than 1. The optical carrier frequency [[this]] <u>that</u> is drawn vertically is modulated, and amplitude modulated in this example, whereby the modulation itself is also not constant, but varies with a frequency that is nearly determined from the so-called [[chip]] <u>chirp</u> rate, i.e. the frequency shift per resonator pass divided by the resonator pass time and is further determined by the light run time along the path difference ΔL between the measurement beam path and the reference beam path as in the design of Fig. 5. The modulation frequency of the injection light is therefore not held constant, but varies around this so-called signature value, i.e. around the value this results from the chirp rate and ΔL through the formula

$$\Delta\nu = \alpha \times \Delta L \times c^{-1}$$

whereby c is the light speed. The modulation frequency is changed around this signature frequency and is preferred in a linear saw tooth form. An intensity is yielded at the detector, as is displayed in Fig. 7. It turns out that a very significantly manifested, sharp intensity peak of the beat signal can be obtained, i.e. the signal is degraded very little from noise and in particular shows a minor degree of noise and thereby a more precise measurement than has been possible up to this point in the current state of technology. It is significant that the injection emission modulation and the beat frequency intensity are tightly linked to one another and a beat frequency intensity maximum is then achieved when the injection modulation frequency corresponds to the frequency expected for a given path difference taking the chirp rate into account.